

quite clear that marketplace prices commonly vary in their relationship to costs.

The theoretical economist's goal of creating complex tariff structures to force each pricing element to mirror some conceptually pure image of how costs are incurred is futile. The characteristics of telephone calls that may be modeled are complex and the economic basis of such models is dubious at best. Some examples of these characteristics are:

Time of day (peak vs. off-peak)

Outcome (completions vs. attempts)

Technology (direct vs. Tandem, SS7 vs. other)

Time frame (costs may be variable in the long run, but fixed in the short and mid-term)

Economic value (while costs may be fixed, revenue opportunities may be variable)

In fact, most costs are not incurred in the theoretically pure manner. Real world prices rarely reflect the complexity of costs at the level of detail for which the commission is aiming. Moreover, all indications are that pricing is becoming even less complex, with flat rate bundles emerging as the pricing strategy of the future. The administrative and regulatory complexity of slicing the network up into fixed, partially variable (per call) and variable (per minute) and totally variable (peak vs. off-peak) is not worth the benefits, when actual pricing will not reflect the underlying complexity. The purported efficiency gains of multi-part pricing will only be achieved if the Commission requires companies to reflect these cost

differences in the prices charged to consumers. But consumers can be expected to rebel and seek simplified pricing structures.

B. DEFINING COMPETITION FOR PURPOSES OF DEREGULATING SERVICES

Although we have advocated a prescriptive approach to access charge reform, if the Commission contemplates using a market-based approach, there is one aspect of this approach on which we would like to comment. The analytical framework that the Commission used in the deregulation of AT&T is fundamentally flawed. In this regard, the long distance market exhibits significant elements of the exercise of market power. The Commission has accepted as competitive a market which is highly concentrated by any standard. (For example, in most market segments the long distance market is twice as concentrated the Department of Justice's threshold for a highly concentrated market.) The FCC must abandon its amorphous, non-specific approach in determining when a market is competitive. The FCC should require specific measures of competitiveness in specific product and geographic markets. "Potential" competition should be rejected as a standard of competitiveness. Instead, "actual" competition should be considered the necessary and sufficient threshold. In other words, markets should be defined by the actual availability to customers of direct substitutes.

Until there is an alternative local service provider for a significant portion of a local market, ratepayers are still the captive customers of the local exchange companies, and long distance companies or enhanced service providers are still

dependent on the telephone companies for access to customers. Under these circumstances, fair competition cannot exist. Tests of effective competition should include:⁴¹

1. Consideration of the number and size of actively participating alternative providers.
2. The extent to which directly comparable services are available from alternative providers in relevant markets.
3. The ability of alternative providers to offer equivalent services at competitive prices.
4. The market share held by the telephone company.
5. Whether the telephone company is earning monopoly profits from the service or product.

Ultimately, effective competition means multiple suppliers for significant numbers of subscribers with significant numbers of subscribers having taken alternative service.

Finally, the Commission needs rules for reclassifying a service if it proves not to be competitive over time.

VI. CONCLUSION

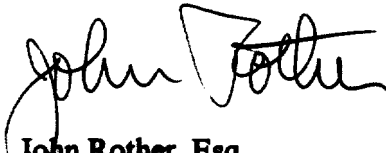
In conclusion, the American Association of Retired Persons, the Consumer Federation of America, and the Consumers Union ask the Commission to prescribe a reduction of the Subscriber Line Charge and the access charges that long

⁴¹ "Comments of Dr. Mark N. Cooper on Behalf of the American Association of Retired Persons," before the Tennessee Public Service Commission, Inquiry for Telecommunications Rulemaking Regarding Competition in the Local Exchange, Docket NO. 94-00184, March 15, 1994.


distance companies pay to the RBOCs. Moreover, we ask the Commission to mandate the pass through of access charge reductions in the basic long distance rates that companies charge. This approach is consistent with the Joint Board's Recommended Decision in its universal service proceeding and the Commission's ruling in the local competition proceeding. Most importantly, this approach will guarantee consumers immediate reductions in telephone rates and improve the chances for competition in the local telephone market.

Wherefore, Commentors urge the Commission and Federal-State Joint Board to adopt the access charge reform proposals contained herein.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "John Rother". The signature is fluid and cursive, with the first name "John" and last name "Rother" clearly distinguishable.

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A handwritten signature in black ink, appearing to read "Mary Rouleau". The signature is highly stylized and cursive, with a large, looping initial "M" and a long, sweeping horizontal line extending to the right.

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MONEY FOR NOTHING

THE CASE AGAINST REVENUE REPLACEMENT IN THE TRANSITION TO LOCAL EXCHANGE COMPETITION:

**A Consumer View of the Gap Between
Efficient Prices and Embedded Costs**

AMERICAN ASSOCIATION OF RETIRED PERSONS

CONSUMER FEDERATION OF AMERICA

CONSUMERS UNION

JANUARY 1997

I. INTRODUCTION

A. THE STAKES FOR CONSUMERS

The recent passage of the Telecommunications Act of 1996 (the 96 Act)¹ and the adoption of rules for local competition by the Federal Communications Commission (FCC)² unleashes a consumer issue of immense proportions. By adopting an approach to pricing the use of bottleneck facilities that is based on the cost of an efficient telephone network,³ the FCC has opened the door to potential rate reductions for residential consumers of as much as \$20 per month off their present bills, a total of \$20 billion per year in consumer savings.⁴

These potential gains for consumers arise because the new law seeks to introduce full competition not only in the local market, but across all markets that will make up the information superhighway -- local, long distance, voice, video and data. The initial battle over consumer savings is being fought over local exchange service⁵ and exchange access service⁶ because the law recognizes that the most difficult obstacle to introducing competition into the telecommunications industry is to end the century old monopoly in local telephone service.⁷ It recognizes that the entrenched local companies would easily continue to dominate the local exchange market if they are allowed to use their control over the ubiquitous telephone network to frustrate competition. Using this base of market power, local exchange companies could easily dominate other segments of the telecommunications industry.

Consequently, the law orders the local companies to make the local network available for use by competitors on terms that are nondiscriminatory at prices that cannot be used to cross-subsidize their entry into other markets. Once the Regional Bell Operating Companies (RBOCs) do so, the law

allows them to enter into the long distance business within their service territories. The law also immediately expands the opportunity for local companies to enter into other telecommunications businesses, like cable TV, out-of-region long distance, and manufacturing.

B. THE REACTION OF THE LOCAL EXCHANGE COMPANIES

The local exchange companies have resisted this policy vigorously. While they welcome the new business opportunities, they have steadfastly opposed efforts to open their networks up on terms and conditions that would make competitive entry easy.⁸ In particular, they argued against basing the price of access to network elements on forward looking, least cost principles. They argued against this pricing during the proceeding at the FCC,⁹ have sued to have the FCC order overturned primarily on these grounds,¹⁰ are attacking the pricing principles in state proceedings all across the country,¹¹ and have begun a public relations campaign to influence policy makers.¹²

The RBOCs' idea is to raise basic service prices through a process called rate rebalancing, rather than lower them. The local exchange companies argue that their historic, embedded costs, which are far above the FCC's estimate of forward looking, efficient costs, must be treated as inviolable. They claim that every penny of investment and every dollar of expense that they have incurred must be recovered from consumers under the social compact that exists between the local company and ratepayers. They define the gap between embedded costs and efficient costs as a social obligation that must be paid to the companies. They would prevent competition from moving forward until they are assured recovery of these costs.

C. PURPOSE AND OUTLINE OF THE PAPER

The FCC has recently summarized the issue for costs in the federal jurisdiction as follows:

Current interstate access service revenues permit recovery of the interstate portion of embedded costs, subject since 1991 to the constraints of price cap regulation. The revenues that would be generated if all access services were priced at forward-looking, economic cost may be much smaller. We generally ask parties to discuss, in light of the other reforms discussed in this proceeding and other developments pursuant to the 1996 Act, the following issues: the amount and make-up of the difference between these amounts, whether recovery of the remaining interstate-allocated costs should be permitted, the lawfulness of a denial of such recovery, and possible recovery mechanisms.¹³

This paper answers these questions. It takes a very different view of the gap between historic costs and efficient costs than the RBOCs do. Building on a long series of joint and separate analyses and testimony presented by the American Association of Retired Persons and the Consumer Federation of America,¹⁴ this paper demonstrates the following.

- o The gap between embedded costs and efficient costs is made up of a variety of items that consumers should not be obligated to pay under any form of regulation and would never be forced to pay in a competitive marketplace.
- o Part of the costs claimed by the LECs should not be recovered because they represent excess profits and inefficiencies in operation.
- o Part of the costs claimed by the LECs should not be recovered from basic service rates because they were incurred as investments to support other, competitive services. If the LECs are the most efficient providers of these services, they will recover these costs in the prices they charge in the marketplace.
- o Part of the costs have already been compensated through the extremely high risk premiums that the RBOCs have earned in the decade since divestiture and their failure to write any assets off of their regulatory books.
- o The FCC's decision to use efficient costs is not only the theoretically correct economic basis for establishing effective competition in the

local telephone market, it also the only basis on which a level playing field for competition can be laid across all market segments.

- o The FCC should adopt efficient costs for its access charge reform policy.

With as much as \$20 billion at stake, regulators and legislators will be under extreme pressures from local companies to make them whole. This paper argues that to do so would rob consumers of the benefits of competition and reward local companies far beyond anything they could win in a competitive marketplace. It demonstrates why regulators should not give in to requests by the local exchange companies for increases in basic service rates and should move the prices of basic service to their efficient levels.

The paper is organized as follows.

Chapter II presents the analytic framework for considering telephone company cost claims. First it gives an overview of the policy debate. Then it reviews the debate over stranded investment.

The analytic framework is applied in three empirical chapters.

Chapter III presents an empirical explanation for the gap between the LEC claimed cost of local service and engineering estimates of the cost of an efficient network.

Chapter IV presents a discussion and estimation of the magnitude of the benefits that local companies are likely to enjoy as they move into long distance.

Chapter V presents an estimation of the magnitude of risks of stranding for which local exchange companies have already been compensated.

II. THE DEBATE OVER RATE REBALANCING

A. THE INDUSTRY VIEW OF COST ALLOCATION – RATE REBALANCING

At public utility commissions all across the country local exchange companies (LECs) are seeking to raise the price of basic service through a process they call rate rebalancing.¹⁵ The FCC is worried about the recovery of remaining embedded costs.¹⁶ The LECs claim that there are billions of dollars of "subsidies" embedded in current rates. The LECs contend that the costs of the loop and network facilities should be billed only to core services (*i.e.*, basic local service) and not to the other services which use the loop and network facilities. They claim that the costs of the loop are currently recovered by levying access charges on the Interexchange Carriers (IXCs) and collecting markup on the prices charged for enhanced services.

The LECs claim that some ratepayers are the beneficiaries of the subsidy, while others are the source of the subsidy. Under the LEC view of the rate structure, ratepayers who receive core services below costs but do not buy a lot of enhanced or long distance services are net winners; those ratepayers who buy a lot of enhanced and long distance services are net losers. The LECs also claim that this pattern of subsidy flows is unsustainable in the face of competition. They contend that competitors will attack the services and areas priced above cost, cutting off the availability of funds to support below-cost pricing of other services or areas.

The LECs demand that they be kept whole in the transition to competition. Before the charges that Interexchange Carriers (IXCs) pay for the use of the loop are reduced or competition erodes the LEC share of high margin markets, the LECs want to raise rates for core services dollar-for-dollar.¹⁷ For enhanced services, they want to raise the rates of services they feel are underpriced

and lower the rate of services they feel are overpriced. If the LECs are unable to engage in rate rebalancing through regulation or the marketplace,¹⁸ they want to be made whole from a "social fund" that compensates them for their historic costs.

B. EVALUATING THE LEC ECONOMIC CLAIMS FOR RATE REBALANCING

We believe that there are two fundamental legal and economic reasons that local exchange rate rebalancing, which would increase the cost of basic monthly service in anticipation of expanded competition in telecommunications networks, is unnecessary and would be anti-competitive:

- o The claimed costs are overstated.
- o The recovery of costs from basic service is excessive and inappropriate.

First, the embedded costs that the LECs attribute to telephone service are vastly overstated. Rigorous cost analysis shows that they far exceed what it would cost to build an efficient network. The claimed costs of local exchange companies have come under increasingly close scrutiny that reveals that these costs are not consistent with the costs that an efficient provider of local telephone service would incur. Any policy that institutionalizes the claimed costs in basic rates would give the companies a huge windfall of economic resources and reward their strategic investments that are intended to frustrate competition.¹⁹ If the State commissions rebalance rates to cover investments made in anticipation of competition, or to cover inefficiencies, LECs will be able to recover costs from ratepayers that should either be recovered from competitive services, or not at all.

Second, under the new federal law, local exchange companies will be allowed to utilize the very same facilities that are used for local service to deliver a number of new services, including in-

region interlata long distance and video services. These new sources of revenue will utilize the very network facilities the companies claim are not generating adequate revenues on basic service. We believe that all services which use the network should pay for all facilities they use. Regulators should take into account the revenue opportunities supported by these facilities when considering whether or not LECs should be compensated for investments in them.

Even if local exchange companies lose some market opportunities to recover their in local exchange and exchange access service markets, they have gained many opportunities in other markets. Rate rebalancing would improperly indemnify these LEC costs against the very impact of the competition that they are supposed to face. The effect is to give the incumbent LEC a "war chest" to use against competitors as they enter new lines of business.

Our view of cost estimation and cost recovery is rooted in the long history of regulation of utilities in this country and rests on two long standing principles

- o Regulation sought to protect ratepayers from pricing abuse by only allowing just and reasonable rates and, thereby, keeping the revenue requirement under control.
- o Regulation sought to promote universal service by recovering as large a share as possible of joint and common costs from non-basic services.

The economic and regulatory underpinnings of this policy have not been altered by federal or state law. The requirement that rate be just and reasonable remains the law of the land, buttressed now by the addition of "affordable" in the Telecommunications Act of 1996. The fact that telecommunications service providers are contemplating the integration of more services into existing networks should only make it easier for the Federal Communications Commission and State commissions to spread the fixed costs of the network to a growing body of network users and uses.

The telecommunications network has always been typified by substantial joint and common costs between services -- including local, long distance and enhanced services. Sharing of joint and common costs is the linchpin of the 1996 Act. We believe that affordability can only be assured where there is a direct link between the expansion of utilization of the network -- the growth of information, data and video services -- and declining costs for basic access. As the network is filled up with enhanced and discretionary services, the cost of network access and plain old telephone service will decline for all people, if the link between use and basic service rates is well-crafted.

By far the most important component of cost in local exchange and network access service is the loop -- the wire that connect the consumer to the network. Loops are used by all telecommunications services -- local and long distance.

Above all, commissions should view the loop as a shared facility. If the loop were not provided by the existing local exchange companies, telecommunications service providers would have to build their own loops, or rent the use of some other loop in order to sell their services to the public. Because the loop is a joint and common cost shared by competitive and noncompetitive services, it is subject to Section 254(k) of the new telecommunications law.²⁰ The language of section 254(k) could not be more precise -- basic service can bear, at most, a reasonable share of joint and common costs. Congress went well beyond creating a formal definition of cross-subsidy, however, to state a clear public policy preference for cost allocators when it required "cost allocation rules, accounting safeguards, and guidelines to ensure that services included in the definition of universal service bear no more than a reasonable share of the joint and common costs of facilities used to provide those services."²¹

It is not only consumer advocates who take this view of the loop.²² Numerous State regulators also take this view.²³ The FCC has finally accepted this view.²⁴ Some in the long distance industry,²⁵ and even some local companies point out charges for the use of the loop represent the recovery of joint and common costs.²⁶

C. STRANDED INVESTMENT

Up front revenue replacement for lost opportunities and compensation for stranded investment through either the exercise of market power by overpricing remaining bottleneck facilities or through regulatory indemnification plans lacks any economic or legal justification.

1. ECONOMIC PRINCIPLES AND ANALYSIS

There is no reason for federal or state policy makers, commission or the courts to conclude that stranded investment currently exists. There is no reason to believe that every asset deployed by the companies was deployed to meet a social obligation. There is no reason to believe that the value of every asset which has not been fully depreciated when technology renders it obsolete was undermined by a social policy of underpricing. On the other hand, there is good reason to believe that the companies have already been substantially compensated for any risks of under recovery of the value of the assets they wish to declare stranded.

There is no reason that policy makers should conclude that stranded investment will soon exist. There is no demonstration that assets will under-perform and revenue deficiencies will develop as a result of regulatory or marketplace changes.

These is also strong evidence that some of the costs would not be recovered in a competitive

marketplace nor should they be recovered under any reasonable theory of economic regulation. The indication include a persistent pattern of excess profits earned by the LECs has existed for a decade. Similarly, there is over investment in the network has been misallocated to local rates. There is also evidence of substantial inefficiency which regulation was never intended to countenance.

There is no reason for policy makers to conclude that, even if some investment is stranded, a new regulatory mechanism must be implemented to handle it. The LECs have not demonstrated any company specific revenue deficiency in the aggregate. There is not even a demonstration of a revenue deficiency in the specific exchanges which are said to be creating the social obligation.

Allowing LECs the right to claim and recover "stranded" investment is not necessary to ensure the confidence of capital markets in LEC investments. The write-off of assets is a frequent occurrence in competitive industries. Although investors would like social insurance funds to ensure them against the stranding of any investment, they understand the risks and rewards and do not require such funds for all investment. These risk premiums have already been reflected in the handsome returns earned by incumbent local exchange companies.

Competitors could be placed at a severe disadvantage as a result of the recovery of "stranded" investment. If the incumbent LECs are allowed to declare investment "stranded" whenever they lose customers and market share, they will be operating with a massive financial cushion. This will lower the risk that they face and continually reinforce their financial position. Competitors, who have no such cushion, will be at a disadvantage.

2. LEGAL PRINCIPLES AND ANALYSIS

Local exchange companies have claimed that they deployed their assets as part of a regulatory

compact with ratepayers. In exchange for undertaking the obligation to serve, they were to be afforded a return on their investment. They claim that the use of efficient prices undermines their ability to recover their costs. As a result, they claim that they have been the victims of an unconstitutional taking of their property.

The version of the regulatory compact between stockholders and ratepayers that LECs invoke to make their claims for stranded cost recovery never existed.²⁷ The guarantee of recovery that LECs claim is an ex post effort to recover assets and recoup costs for which management bears responsibility and stockholders have already been handsomely compensated.

To compensate companies for uneconomic investments, when they have already been compensated for the risk of those investments, constitutes a double recovery of costs and violates the fundamental principles of just and reasonable rates. Far from guaranteeing this complete recovery of all costs rendered uneconomic by competition, current law places the burden of the risk of competition squarely on the shoulders of utilities and shields them, at best, only from the most dire financial outcome -- bankruptcy. The extremely strong financial performance of local exchange companies undermines any claims that failure to recover obsolete and uneconomic investment will threaten the financial soundness of these companies.

Furthermore, the LECs admit that setting prices at efficient levels may not result in any losses whatsoever. Because they are being given market opportunities, they admit that they may be able to offset losses in some markets or on some services with increases in others. As one LEC noted

With ILEC rates set at incremental cost, to the extent that market conditions preclude raising other prices, ILEC revenues and earnings will decline.²⁸

To the extent that they are more efficient or more effective competitors, they will retain

customers and there will be little loss.²⁹

The case law that the LECs frequently cite to attempt to dissuade the Commission from adopting a pro-competitive pricing approach to network elements makes it clear that takings involve only the most dire of outcomes.³⁰ The supreme court held that the overall result of the regulatory process had to be a rate of return that in the aggregate was confiscatory. The specific treatment of even specific assets, not to mention amorphous categories of cost, is not the basis for a takings claim. There is no constitutional guarantee of recovery of all costs, even when they are prudently incurred. There is only a guarantee of the opportunity to earn a rate of return that is not so low as to be confiscatory.

The constitutionality of a takings argument that rests on an entirely uncertain argument about the relative efficiencies of competitors in the market, how competitors will allocate and recover their joint and common costs, and where every new risk is offset by a profit opportunity is dubious at best. It is certainly not a basis for failing to implement the pro-competitive policy that Congress clearly had in mind when it passed the 1996 Act.

The case which the LECs cite most often as the basis for their legal argument for stranded investment is Duquesne Light Company v. Barisch.³¹ In their discussion, the LECs have missed one important point, the utility lost the case. Although the justices made many pronouncements about how regulators should treat utilities, in the end, they found that there was no taking and the utility should not recover the costs it was claiming.

The facts of that case were actually much more favorable to the utility than the facts the Commission is likely to encounter in any takings case brought by a local telephone company. In that case there were specific costs associated with a nuclear power plant that was built and which the

company claimed was a prudent cost. A Pennsylvania appeals court disallowed recovery and the Supreme Court upheld its decision.

The utility in that case had no opportunity to recover the costs which had been disallowed, but the Supreme Court upheld the lower courts decision anyway. Under the 1996 Act, the LECs have massive revenue opportunities in markets which were previously closed to them. The arguments for a taking under the 1996 Act, therefore, are far weaker than the failed arguments made by the utility in Duquesne.

D. CONCLUSION

This chapter has shown that the claims of the LECs to revenue replacement lack an economic, legal and public policy basis. These claims must be subject to close scrutiny in the context of the actual market performance of the companies and the industry. The next three chapters provide the necessary empirical analysis to reach conclusions about the specific claims of the companies.

III. ESTIMATION OF EXCESSIVE COSTS IMPOSED ON BASIC SERVICE

A. EVIDENCE OF THE GAP BETWEEN EMBEDDED AND EFFICIENT COSTS

As the previous chapter makes clear, the difference between embedded costs and efficient costs is one of the crucial issues in the transition to competition. The gap has been documented in a number of recent proceedings.

There are at least four available models for estimating the cost of providing telephone service which have been utilized extensively in recent federal and state regulatory proceedings -- the Benchmark Cost Model³² developed by a consortium of local and long distance companies, the LECOM model,³³ developed by David Gable and generally utilized as expert testimony by Offices of Public Counsel, the Hatfield model which has been utilized by long distance companies,³⁴ and the proprietary models employed by the LECs.³⁵

Table 1 shows comparisons between the claimed costs of the local exchange companies and the estimates of costs in a number of states. It is quite clear that substantial differences exist. Commission and third party estimates show differences on the order of \$15 to \$17 between embedded costs and efficient costs. This means the artificially high rates being charged today are unwarranted, could not be sustained in a competitive market, and should not be compensated. Reflecting this difference, Commissions have ordered prices to be set at efficient levels. Local exchange companies have responded with law suits at the federal and state levels.

TABLE 1:

COST ESTIMATES FOR LOOP AND BASIC SERVICE

STATE	COMMISSION DECISION	THIRD PARTY ESTIMATE	LEC CLAIMED COST
LOOP COST ONLY			
COLORADO	18.00	10.44	35.72
CONNECTICUT	12.95	11.14	28.72
FLORIDA	17.28	11.06	30.32
ILLINOIS	10.93	10.05	30.65
MICHIGAN	10.03	12.25	32.87
OREGON	12.45	10.12	37.91

TOTAL BASIC SERVICE

WASHINGTON	14.00	17.02	33.40
FLORIDA	19.00	17.11	30.32
INDIANA		18.22	30.50
		16.63	
IOWA	15.55	16.33	41.50

SOURCES:

COMMISSION DECISION LOOP COST: Americans for Competitive Telecommunications, Making the Grade, January 1997, Table 3.

LEC CLAIMED COST OF LOOP-- "Comments U S West Inc.," In the Matter of Federal-State Joint Board on Universal Service, Before the Federal Communications Commission, FCC 96-93, CC Docket No. 96-45, April 12, 1996, Schedule 3. MCI, Sprint, USW and NYNEX Benchmark Cost Model, CC Docket No. 80-286, December 1, 1995.

THIRD PARTY ESTIMATE OF LOOP: Hatfield and Associates, Hatfield Model: Version 2.2, Release 1, May 30, 1996, included as Appendix D to Reply Comments of AT&T

FLORIDA COSTS - Commission order and company estimate in "Order No. PSC-95-1592-FOF-TP," before the Florida Public Service Commission, In Re: Determination of funding for Universal Service and Carrier of Last Resort Responsibilities, Docket No. 950696 - TP, December 27, 1995, p. 32, states that "The record demonstrates that Southern Bell's average cost for a residential line is "somewhat less than \$19 a month." Third party estimate -- Hatfield Associates Inc., The Cost of

Basic Network Elements: Theory, Modeling and Policy Implications, March, 1996.

WASHINGTON -- "Fifteenth Supplemental Order: Commission Decision and Order Rejecting Tariff Revisions: Requiring Refiling," Washington Utilities and Transportation Commission v. U S West, Inc., April 10, 1996, p. 9 states, "USWC's own data show little cost difference between its rural and urban service territories. The Commission directs the Company to eliminate extended area service surcharges and establish a statewide residential rate of \$10.50 per month, the average in effect today. The \$10.50 rate covers the cost of local residential service and provides a substantial contribution to shared and common costs. Third party estimate -- Hatfield Associates Inc., The Cost of Basic Network Elements: Theory, Modeling and Policy Implications, March, 1996.

INDIANA -- David Gable, Current Issues in the Pricing of Voice Telephone Services (American Association of Retired Persons, 1995), p. 17. The company estimate of costs is cited in "Testimony of David Gable, Indiana Utility Regulatory Commission, In the Matter of a Petition of Indiana Bell Telephone and Telegraph Company, Incorporated, for the Commission to Decline to Exercise in Part Its Jurisdiction over Petitioner's Provision of Basic Local Exchange Service, to Utilize Alternative Regulatory Procedures for Petitioner's Provision of Basic Local Exchange Service and Carrier Access Service, and to Decline to Exercise in Whole Its Jurisdiction Over All Other Telecommunications Services and Equipment Pursuant to IC 8-1-2-6, Cause No. 39075; Third party estimate -- Hatfield Associates Inc., The Cost of Basic Network Elements: Theory, Modeling and Policy Implications, March, 1996.

IOWA: "In Re: U S West Communications Inc.," State of Iowa, Department of Commerce, Utilities Board, Docket No. RPU-95-10, May 17, 1996, p. 26. Third party estimate -- Hatfield Associates Inc., The Cost of Basic Network Elements: Theory, Modeling and Policy Implications, March, 1996.

Another perspective on these costs can be gained by reviewing the costs estimates presented in video dialtone (VDT) proceedings compared to independent estimates of the cost of multi-purpose networks.

Digital line carrier (DLC) for telephony and hybrid fiber/coax (HFC) systems for video are similar architectures. They involve pulling fiber through the network to a point where it connects to a remote distribution unit, known as the pedestal. Bit streams are intertwined until they arrive at this pedestal. Another transmission medium is then used for distribution plant: DLC uses copper; Fiber/Coax systems use coaxial cable. Bits are delivered to a network interface unit located in or near a consumers home, which then feeds them to a piece of customer premise equipment. Because the basic architecture of the two networks is the same, integrated delivery of telephony and video is an attractive prospect.

Table 2 presents a series of estimates of costs for telephony only, video only and integrated systems. The variety of estimates can help to shed light on the wide range of cost estimates that have been placed before the FCC in related proceedings. All of the costs are presented in terms of capital cost per home. For the purpose of this table, the HFC network is assumed to be ubiquitous -- i.e. all potential homes are passed. The LEC cost estimates come in at about half the level of publicly available figures.

LECs argue that this reflects dramatic decreases in cost experienced over the past few years, but these dramatic cost decreases are never realized for other services, like access. LECs have been claiming for some time that the cost of fiber is falling rapidly. The cost of digital switches has fallen by approximately 80 percent in the past few years.³⁶ Bell Atlantic's figures would suggest that the cost of electronics are plummeting. Between one half and three quarters of the difference between

TABLE 2
COST ESTIMATES FOR DIGITAL LINE CARRIER AND
HYBRID FIBER/COAX VIDEO

(All estimates are based on cost per line in dollars.)

	C. O.	RDU/ ONI	FEEDER	DISTRIB- UTION	DROP	CUSTOMER PREMISE	TOTAL
DLC							
TELEPHONY							
Reed (A)	3	240	46	175	106	126	696
Hatfield (B)	45	251			309		743
Selwyn ©	190	225	100	0	320		835
BROADCAST CABLE (A)							
Coax	12	19	26	182	82	103	424
Hybrid Bus	15	307	104	150	106	126	772
INTERACTIVE VIDEO							
Hybrid (A)							
SCM	329	299	34	170	82	103	1017
Bell (D)							
Atlantic	103	144	36	165	49	?	497
US West (E)	208	195		107	127	?	637

SOURCES AND NOTES:

A) Reed, Residential Fibre Optic Networks: An Engineering and Economic Analysis (Artech House, Boston, 1992), Tables 5.3 and B.8.

B) Hatfield, The Cost of Basic Universal Service, July, 1994. Table 4 presents bottom up engineering costs for a variety of density classes. The three middle density classes, which are ideal candidates for digital line carrier, all fall in the range of \$726 to \$764.

C) Economics and Technology, Inc./ Hatfield Associates, Inc., The Enduring Bottleneck, 1994.

Table 3.2 presents the cost of adding telephony to cable which relies on digital line carrier.

D) Bell Atlantic, In the Matter of the Application of: The Chesapeake and Potomac Telephone Companies of Maryland and Virginia for authority pursuant to section 214 of the Communications Act of 1934, as amended to construct, operate, own and maintain, facilities and equipment to provide a commercial video dialtone service within a geographic territory defined by the Maryland and Virginia portions of the Washington Local Access Transport Area (LATA), Exhibit 3A, and Bell Atlantic's Response to Inquiries, December 16, 1994, Exhibit 3, for common costs.

E) U.S. West, In the Matter of the Application of U.S. West Communications, Inc., for Authority Under Section 214 of the Communications Act of 1934, as Amended to Construct, Operate, Own, and Maintain Facilities and Equipment to Provide Video Dialtone Service in Portions of the Colorado Springs Service Area, Exhibit 3A. Feeder, Distribution and Drop are separately identified in the application. Video serving office equipment is treated as equivalent to Reed's central office equipment. All other costs are treated as pedestal/interface.